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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/990,737	11/21/2001	Indra Laksono	VIXS.0100130	3295
29331	7590	02/08/2006	EXAMINER	
TOLER & LARSON & ABEL, L.L.P. 5000 PLAZA ON THE LAKE SUITE 265 AUSTIN, TX 78746			LEE, RICHARD J	
		ART UNIT		PAPER NUMBER
				2613

DATE MAILED: 02/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/990,737	LAKSONO ET AL
	Examiner Richard Lee	Art Unit 2613

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 14 November 2005.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-70 is/are pending in the application.
 - 4a) Of the above claim(s) 22-50 is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-11, 15-21, 51-61 and 65-70 is/are rejected.
- 7) Claim(s) 12-14 and 62-64 is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 14 November 2005 is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: _____.

Art Unit: 2613

1. The applicants are informed that the JP 07-210670 A reference as cited in the IDS filed August 22, 2005 has not been considered by the Examiner since the applicants have failed to furnish a copy to the Office. A line has been drawn through the citation accordingly as shown in the attached IDS. If the applicants wish for the Examiner to consider this reference, then it is suggested for the applicants to submit a new IDS along with a copy of the reference in response to this Office Action.

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 11, 17-21, 61, and 67-70 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The Specification lacks written description for “determining the second quantization value based on a second ratio of the first ratio to a source bit count” as recited at claim 11, lines 1-2, “the quantization ratio includes a second constant value when the expected amount of video data is less than the first indicator and greater than a second indicator” as recited at claim 17, lines 4-5; “modifying the quantization value for the first macroblock by a second constant value when the amount of data stored in the buffer is greater than a second indicator and less than the first indicator” as recited in claim 21, lines 4-6; “determine the second quantization value based on a second ratio of the first ratio to a source bit count” as recited in claim 61, lines 3-4, “the quantization ratio includes a second constant value when the expected amount of

video data is less than the first indicator and greater than a second indicator” as recited at claim 67, lines 4-5.

The Examiner has reviewed the Specification again in light of the applicant’s comments at pages 16-17 of the amendment filed November 14, 2005, but it is still that certain claimed features lack enablement for the following reasons. At page 16 of the amendment filed November 14, 2005, applicant makes reference to page 11, line 12 to page 12, line 4 of the Specification for providing adequate written description of claims 11 and 61. But the Examiner can not find or determine from the Specification, at such areas identified by the applicant or any where else in the Specification what and where is the second quantization value taught, what and where is the second ratio is taught, what and where is the first ratio is taught, what and where is the source bit count taught, and in combination what and where is “determining the second quantization value based on a second ratio of the first ratio to a source bit count” as claimed.

At page 17 of the amendment filed November 14, 2005, the applicant indicated that an enabling written description for the features of claims 17 and 67 can be found at sub-steps 530, 535, 540, 545, 550, and 555 of Figure 5 and in the corresponding passage at page 13, line 1 to page 14, line 16. The Examiner believes elements 540 and 545 of Figure 5 in connection with page 13 of the Specification are the most relevant areas relating to the features of claims 17 and 67. The Specification teaches at page 13, lines 4-6 teaches that “If the buffer fullness is less than first indicator X and the value of the quantization ratio is greater than 1.0, then value of the quantization ratio is set to a constant value Y in step 545.”. This is different from the claimed features of “the quantization ratio includes a second constant value when the expected amount of video data is less than the first indicator and greater than a second indicator”. Essentially, there

is no teaching of the limitation involving the expected amount of video data being less than the first indicator and greater than a second indicator, as claimed. The Specification teaches that the quantization ratio will be set to a constant value Y if the buffer fullness (i.e., expected amount of video data as claimed) is less than first indicator X and the value of the quantization ratio is greater than 1.0.

At page 17 of the amendment filed November 14, 2005, the applicant had indicated than an enabling written description for the features of claim 21 can be found at sub-steps 530, 535, 540, 545, 550 and 555 of Figure 5 and in the corresponding passage at page 13, line 1 to page 14, line 16. The Examiner still cannot find an enabling written description for claim 21, particularly for the features of “modifying the quantization value for the first macroblock by a second constant value when the amount of data stored in the buffer is greater than a second indicator and less than the first indicator”. The limitations of claim 21 are similar to that of claims 17 and 67, and therefore the Examiner’s position for claim 21 is the same as that for claims 17 and 67 as discussed in the above paragraph.

4. Claims 66-70 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

At claim 66, line 2, before “data”, “video” should be properly inserted in order to provide proper antecedent basis for the same as specified at claim 51, line 6.

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-8, 51-57, and 59 are rejected under 35 U.S.C. 102(e) as being anticipated by Furukawa et al (6,834,080).

Furukawa et al discloses a video encoding method and apparatus as shown in Figure 1, and the same method and computer readable medium including instruction to manipulate a processor as claimed in claims 1-8, 51-57, and 59, comprising the same receiving a first quantization value for a first macroblock (i.e., quantization width QP parameter as generated by 32 of Figure 1, see column 4, lines 18-35, column 5, lines 41-51, column 6, lines 57-61); determining a second quantization value (i.e., parameter correction 34 of Figure 1 corrects encoded parameters, which includes quantization width QP (first quantization value), thereby providing a second quantization value QP' as shown in expression (8), see column 6, lines 57-61, column 7, lines 4-10, column 11, line 64 to column 12, line 21) for the first macroblock based on the first quantization value and an expected amount of video data in a video buffer (i.e., the number of generated bits 133 of Figure 1 output from buffer 21 represents the first expected amount of video data, which is used as a basis for calculating the second quantization value, see column 7, lines 4-10, column 11, line 64 to column 12, line 21); modifying the first macroblock based on the second quantization value (i.e., as provided by expression (8) at column 12, line

17), wherein the first quantization value is received from a source of the first macroblock ((i.e., as provided by 32 of Figure 1); wherein an address location of the video buffer represents the expected amount of video data in the video buffer (i.e., as provided by 21 of Figure 1), wherein a buffer delay value indicating when a frame is to be processed represents the expected amount of video data in the video buffer, the buffer delay value is based on a number of frames stored in a buffer location of the video buffer (i.e., the number of generated bits 133 of Figure 1 represents the buffer delay value, which is based on a number of frames stored in video buffer 21 and is determined on a modeling of the video buffer 21, see column 5, lines 51-60, column 6, lines 3-8); and wherein the expected amount of video data is determined based on a modeling of the video buffer (i.e., as provided by 21 of Figure 1), wherein the modeling of the video buffer includes determining a fullness of the video buffer based on a difference between an input rate and an output rate (i.e., number of encoded bit determination section 33 determines the fullness of video buffer 21 based on a difference between a input rate (target number of bits 134) and a output rate (number of generated buts 133), thereby providing a modeling of the video buffer, see column 6, lines 3-22).

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 9 and 58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Furukawa et al as applied to claims 1-8, 51-57, and 59 in the above paragraph (6), and further in view of Legall et al (5,929,916).

Furukawa et al discloses substantially the same method and computer readable medium including instruction to manipulate a processor as above, but does not particularly disclose wherein the modeling of the video buffer includes using a VBV buffer model as claimed in claims 9 and 58. Such technical features are however old and well recognized in the art, as exemplified by Legall et al (see columns 4-5). Therefore, it would have been obvious to one of ordinary skill in the art, having the Furukawa et al and Legall et al references in front of him/her and the general knowledge of bit budget constraints of a video encoder, would have had no difficulty in providing the VBV buffer modeling system of Legall et al as part of the video encoder as shown in Figure 1 of Furukawa et al for the same well known VBV buffer occupancy level control of the output buffer of a video encoder thereby preventing underflows and overflows purposes as claimed.

9. Claims 10, 15, 16, 60, 65, and 66 are rejected under 35 U.S.C. 103(a) as being unpatentable over Furukawa et al as applied to claims 1-8, 51-57, and 59 in the above paragraph (6), and further in view of Kan et al of record (Low-Complexity and Low-Delay Video Transcoding for Compressed MPEG-2 Bitstream).

Furukawa et al discloses substantially the same method and computer readable medium including instruction to manipulate a processor as above, but does not particularly disclose determining the second quantization value based on a first ratio of an input bit rate to an output bit rate, wherein the second quantization value includes a ratio value of the first quantization

value to a quantization ratio, the quantization ratio is based on the expected amount of video data as claimed in claims 10, 15, 16, 60, 65, and 66. However, Kan et al teaches the conventional buffer control strategies involving determining the second quantization value (i.e., see equation $mbquant\ s1 = mbquant\ decode\ x\ (input\ rate/output\ rate)$ at line 1 of page 100 based on a first ratio of an input bit rate to an output bit rate, wherein $mbquant\ s1$ represents the second quantization value, see section B at pages 99-100), wherein the second quantization value includes a ratio value of the first quantization value (i.e., $mbquant\ decode$ within the equation as shown at line 1 of page 100 represents the first quantization value) to a quantization ratio (i.e., input rate/output rate within the equation as shown at line 1 of page 100 represents the quantization ratio), the quantization ratio is based on the first expected amount of data (i.e., the output rate within the equation as shown at line 1 of page 100 represents the first expected amount of data). Therefore, it would have been obvious to one of ordinary skill in the art, having the references in front of him/her and the general knowledge of quantization control for buffers within video encoders, would have had no difficulty in providing the determining of the second quantization value based on a first ratio of an input bit rate to an output bit rate, wherein the second quantization value includes a ratio value of the first quantization value to a quantization ratio, the quantization ratio is based on the first expected amount of data all as taught by Kan et al as part of the video encoder as shown in Figure 1 of Furukawa et al for the same well known quantization control criteria for preventing overflow and underflow of the buffer purposes as claimed.

10. Claims 12-14 and 62-64 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

11. Regarding the applicant's arguments at pages 18-19 of the amendment filed November 14, 2005 concerning in general that "... Furukawa fails to disclose determining a second quantization value based on an expected amount of video data in a video buffer as recited by claims 1 and 51 ... Furukawa discloses that the quantization width QP is adjusted to generate quantization width QP' based on a difference between the actual number of bits in the encoded data and a target number of bits. On of ordinary skill in the art will appreciate that determining a modified quantization width QP' based on the difference between the number of bits generated for a variable length code and a target number of bits as disclosed by Furukawa is not equivalent to determining a second quantization value based on an expected amount of video data in a video buffer for at least the reason that the number of bits 133 is not representative of an expected amount of video data in a video buffer ... because the number of generated bits 133 represents only the amount of data provided to be stored in the buffer 21 at a given point in time and therefore is not representative of the expected amount of video data stored in the buffer 21 and because Furukawa discloses that it is the difference between the number of generated bits 133 and the target number of bits 134 that triggers modification of the quantization width QP, Furukawa fails to disclose, or even suggest, the features of determining a second quantization value based on a first quantization value and an expected amount of video data in a video buffer as recited by claims 1 and 51, the Examiner respectfully disagrees. It is submitted again that since parameter correction 34 of Figure 1 of Furukawa et al corrects encoded parameters, which

includes quantization width QP (first quantization value) to thereby provide a second quantization value QP', and since the number of generated bits 133 of Figure 1 output from buffer 21 represents the expected amount of video data in a video buffer (see column 6, lines 57-61, column 7, lines 4-10, column 11, line 64 to column 12, line 21), Furukawa teaches the same second quantization value for the first macroblock based on the first quantization value and a first expected amount of video data in a video buffer, as claimed.

Regarding the applicant's arguments at pages 19-20 of the amendment filed November 14, 2005 concerning in general that "... Furukawa fails to disclose that an address location of the video buffer represents the expected amount of data in the video buffer as recited by claims 4 and 54 ... neither element 21 of Figure 1 nor any passage of Furukawa discloses an address location of the buffer in any manner, much less that an address location of the buffer 21 represents an expected amount of video data in the buffer 21 ...", the Examiner wants to point out that: One of ordinary skill in the art is presumed to possess a certain amount of background knowledge independent of the references. *In re Sovish*, 769 F.2d 738, 226 USPQ 771 (Fed. Cir. 1985); *In re Jacoby*, 309 F.2d 513, 135 USPQ 317 (C.C.P.A. 1962). With the above in mind, it is submitted that the buffer 21 of Furukawa must inherently include address locations in order to carry out the reading and writing of data from the memory system. Therefore, it is the Examiner's position again that buffer 21 of Figure 1 of Furukawa provides the same address location of a video buffer representing the expected amount of video data in the video buffer, as claimed.

Regarding the applicant's arguments at pages 20-21 of the amendment filed November 14, 2005 concerning in general that "... Furukawa fails to disclose that a buffer delay value

indicating when a frame is to be processed represents the expected amount of video data in the video buffer as recited by claims 5 and 55 ... Furukawa does not disclose that the frame rate FR determines when a frame is to be processed, nor does Furukawa disclose that the frame rate FR represents the expected amount of video data stored in the buffer 21 ... Furukawa does not disclose the modeling of the buffer 21 in any manner ... Furukawa fails to disclose that the buffer delay value is based on a number of frames stored in a buffer location of the video buffer as recited by claims 6 and 56 ... Furukawa does not disclose that the number of frames stored in a buffer location of the buffer 21 are determined in any manner, so Furukawa necessarily fails to disclose, or even suggest, that the buffer delay value is based on a number of frames stored in a buffer location of the video buffer ...”, the Examiner respectfully disagrees. The applicant’s attention is directed to column 6, lines 9-21 of Furukawa where it is taught that “if the number of encoded bit determination section 33 determines that the difference between the number of generated bits 133 and the target number of bits 134 designated by the user exceeds a threshold, the coded parameter corrector 34 corrects the encoded parameters so that the number of bits 133 are closer to the target number of bits” and “if the difference between the number of generated bits 133 and the target number of bits 134 becomes not more than the threshold as a result of the second encoding, the encoded bit stream stored in the buffer 21 is outputted as an encoded output 200”, and at column 12, lines 26-29 where it is taught that “When the number of generated bits 133 finally becomes not more than the target number of bits 134 and close thereto in an almost reasonable range, the encoding is ended and encoded output data 200 is outputted”. It is clear from these passages that the generated bits 133 of Furukawa is representative of the encoded data 200 to be outputted. And since Furukawa is interested in maintaining a certain frame rate with

fixed quantization width for video encoding (see column 11, lines 37-41, column 12, lines 9-21), and since generated bits 133 is used as a criteria for the output of encoded data 200, generated bits 133 represents the buffer delay value indicating when a frame is to be processed represents the expected amount of video data in the video buffer (i.e., 21 of Furukawa), and based on a number of frames stored in a buffer location of the video buffer as claimed.

Regarding the applicant's arguments at page 21 of the amendment filed November 14, 2005 concerning in general that "... Furukawa fails to disclose that the expected amount of video data is determined based on a modeling of the video buffer as recited by claims 7 and 57 ... neither the number of generated bits 133 nor the difference between the number of generated bits 133 and the target number of bits 134 is representative of the expected amount of video data in the buffer 21, nor does Furukawa disclose that these values are used to model the buffer 21 in any manner ... Furukawa fails to disclose a mechanism for monitoring or estimating the amount of data output from the buffer 21 ...", the Examiner respectfully disagrees. It is submitted again that the number of generated bits 133 of Figure 1 of Furukawa represents the buffer delay value, which is based on a number of frames stored in video buffer 21 and is determined on a modeling of the video buffer 21, and the expected amount of video data output from the video buffer 21 is determined based on a modeling of the video buffer (see column 5, lines 51-60, column 6, lines 3-8). In other words, since the expected amount of video data output from the video buffer 21 is dependent upon the generated bits 133 meeting a certain criteria (see column 6, lines 9-22, column 11, lines 47-63, column 12, lines 26-34), Furukawa anticipates the features of wherein the expected amount of video data is determined based on a modeling of the video buffer.

Regarding the applicant's arguments at page 22 of the amendment filed November 14, 2005 concerning claims 1-8, 51-57, and 59, the Examiner wants to point out that such arguments have been addressed in the above.

Regarding the applicant's arguments at pages 22-23 of the amendment filed November 14, 2005 concerning claims 9 and 58, and in general that "... Furukawa provides no suggestion that it seeks to prevent "underflows and overflows" of its buffer 21 ... one of ordinary skill in the art would find no motivation to combine the teachings of Furukawa and Legall absent a hindsight reconstruction in view of the present application ...", the Examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, even if suggestion for combination is not particularly specified in either Furukawa or Legall, the question in the test for combining references in a section 103 rejection is not solely relied on what the individual reference expressly teaches. *In re McLaughlin*, 170 USPQ 209-213:

"It should be too well settled now to require citation or discussion that the test for combining references is not what the individual references themselves suggest but rather what the combination of disclosures taken as a whole would suggest to one of ordinary skill in the art. Any judgement on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning, but so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made and does not include knowledge gleaned only from applicant's disclosure, such a reconstruction is proper".

It is nevertheless considered obvious to provide the VBV buffer modeling system of Legall et al as part of the video encoding as shown in Figure 1 of Furukawa for the purposes of VBV buffer

occupancy level control of the output buffer of a video encoder thereby preventing overflows and underflows. Therefore, even though neither Furukawa nor Legall taken singularly suggests the combination as claimed, the combination of Furukawa and Legall taken as a whole would have been obvious to one of ordinary skill in the art.

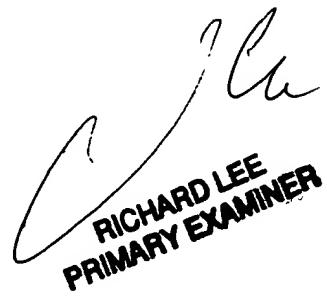
Regarding the applicant's arguments at pages 23-24 of the amendment filed November 14, 2005 concerning claims 10, 15, 16, 60, 65, and 66, the Examiner wants to point out that such arguments have been addressed in the above.

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard Lee whose telephone number is (571) 272-7333. The Examiner can normally be reached on Monday to Friday from 8:00 a.m. to 5:30 p.m., with alternate Fridays off.



A handwritten signature in black ink, appearing to read "R. Lee".

RICHARD LEE
PRIMARY EXAMINER

Richard Lee/rl

2/1/06



A handwritten signature in black ink, appearing to read "R. Lee".